ABSTRACT:

In this study, we report the fluid flow behavior and the characteristic of heat transfer from a differentially heated enclosure walls and tilted at various inclination angles. The double distribution function lattice boltzmann numerical scheme with the same lattice structure is applied to predict the velocity and temperature fields in the system. Two different types of boundary condition are applied at the top and bottom walls of the enclosure. In current study, we found that the vortex formation, size and flow characteristics are significantly affected by the magnitude of inclination angles. We also found that the convection mode of heat transfer dominates the heat transfer mechanism for every simulation condition due to relatively high rayleigh number condition applied in this study.